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An experimental program was undertaken to find a means of facilitating the teaching of art to large numbers of students in a Humanities course at the University of Miami. Original paintings were available for study in the University art gallery, but there was insufficient room for large classes in the gallery and a specialist teacher was not available. A specialist helped to prepare a programed booklet containing a branching program on a unit in Renaissance Art. This booklet was related to numbered paintings in the gallery. The objectives were limited to allow completion of the program in 30 minutes, and were identified as 1) determining which of any two paintings was painted later in time, and 2) identifying the shape of a painting. Pre- and post-testing of 31 freshmen students in an experimental group showed that the objectives were met. Questionnaires administered to the experimental group and to a larger group of students, who later completed the program, demonstrated that students were motivated by the program. It was concluded that use of programed instruction in conjunction with an art gallery provided a highly desirable instructional tool when used with television or film demonstrations of technique, and with small discussion seminars. Test and questionnaire results, and samples of students' comments are included in the text. Appendices give program samples, and the pre- and post-test. (PM)

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PROGRAMED INSTRUCTION IN AN ART GALLERY.

Robert M. Diamond

April 1966

Report No. 27

OFFICE FOR THE STUDY OF INSTRUCTION

University College
University of Miami
Coral Gables, Florida

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PROGRAMED INSTRUCTION IN AN ART GALLERY

Background

The freshman and sophomore Humanities course at the University of Miami consists, for most of the students, of one television lecture, two seminars, and one two-hour writing laboratory each week. The course covers, in an introductory fashion, literature, art, architecture, drama, philosophy and music. While the television lectures are concerned mainly with aspects of art, architecture, drama and music, the seminars are designed to cover literature and philosophy and to provide students an opportunity to discuss the televised presentations. To assist the seminar instructors a wide variety of instructional materials is available. (A detailed description of these materials, mostly slides and transparencies, will be found in an earlier report.[1])

This year under the direction of the division chairman an effort was made to explore greater use of the many resources available within the university community. Previously the only use of faculty from other departments within the Humanities program was an occasional "guest" lecturer in one of the televised presentations. In the fall of 1965 sophomores were required, for the first time, to attend special concerts presented by the University's Music Department. The content of the program

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[1]Robert M. Diamond, Instructional Materials in the Seminar, Report #18, Office for the Study of Instruction, University of Miami, Coral Gables, Florida, July 1965.

was carefully selected to coordinate with the content of the course. During the next semester these same students attended special matinee performances of Zuckmayer's "The Devil's General" produced by the Drama Department. Once again the selection of the play was coordinated with the material covered in the course. Also for the first time students were assigned to attend regular class meetings in the campus affiliated art gallery where they had an opportunity to view works of art as part of an organized discussion group.

Even though these experimental projects proved highly successful the University's Joe and Emily Lowe Art Gallery was not yet being fully utilized. The gallery, though not considered outstanding, does provide a major resource for the Humanities program.

By its very nature an art gallery presents several unique instructional problems if a standard learning sequence is to be designed for a large number of students.

1. A close-up view of the paintings is often required. This becomes extremely difficult when large numbers of students are attempting to view a single picture at the same time.
2. An art gallery cannot effectively handle large groups of students simultaneously. (The two Humanities courses at the University of Miami have a combined enrollment of over 3,500 students.)

The problem of using the gallery is further compounded by the specialized skills of the Humanities faculty. Since a great

majority of the faculty have their teaching strength in literature rather than art, they cannot be expected to provide maximum instruction in the area without assistance. Furthermore, specialists in art, although present on campus, are not available to teach in this program.

It was therefore decided to explore the possible use of programed instruction. It was anticipated that with this technique it would be possible to use effectively available resources while bringing to each student the instruction of experts.

Procedures

The development and field testing of this project was under the direction of the Office for the Study of Instruction in close association with the Division of Humanities. The procedures were as follows:

1. Statement of Objectives

   Content and objectives of the program were the responsibilitiy of a member of the Humanities faculty assisted by a specialist in art history from the University Art Department. Both of these faculty members received a short introduction to programed instruction and read Mager's excellent introduction to behavioral objectives Preparing Objectives for Programed Instruction.[1] Since a primary purpose of this experiment was to test a possible application

[1] Now published under a new title, Preparing Instructional Objectives (San Francisco: Fearon) 1963

of programed instruction, the objectives were limited in number to allow the program to be completed in approximately 30 minutes by most students. The following objectives were identified for this project:

A. When shown two Renaissance paintings, a student will be able to determine which was painted later by using the following characteristics as a basis for judgment:

    1. Reality
    2. Perspective
    3. Subject Matter

B. When shown a painting, the student will be able to identify its shape and, when appropriate, differentiate between diptych and triptych, gothic arch, tondo, and a combination of tondo and rectangular.

The Renaissance period was selected for two basic reasons: first, it is an important period in the art sequence of the course, and, second, it is well represented in the permanent exhibit of the University's Lowe Art Gallery being the predominant subject in the Samuel H. Kress Collection.

2. Program Writing

The specialist in art history first identified the key paintings that could be utilized for instructional purposes and, in the process, identified the characteristics that were indicative of each period. The basic

programing strategy and the actual writing of the program was the responsibility of the experienced Humanities teacher. For maximum interest and effectiveness a branching program was developed. Once the program content was complete, final editing was done by the Office for the Study of Instruction. Here, two changes took place: the sequence was edited and modified to provide a change of pace for the student and maximum effort was made to develop a learning sequence that the student would find interesting.

The basic strategy is relatively simple. The programed booklet directs the student to view selected paintings displayed in the gallery. For practical purposes each painting is identified by a code letter. Since the dates on the paintings could give the student additional clues the name plates were covered. Two sample sequences from the 56-page program will be found in Appendix A. The paintings used in the program will be found in Table I.

3. Experimental Design

Thirty-one students registered in the first semester freshman Humanities course were included in the experimental group. These students were selected because they had not yet received any formal instruction in Renaissance art and because they could be considered typical of the average University of Miami student.

TABLE I

Paintings Utilized*

Identification Letter	Painter	Painting
A	Sano di Pietro	*Madonna and Child with Saints*
B	Artist Unknown (Tuscan School)	*The Crucifixion*
C	Lippo Vanni	*Saint Dominic; Madonna and Child with Donors; St. Elizabeth of Hungary*
D	Master of the Blessed Clare	*The Adoration of the Magi*
E	Francesco di Giorgio	*Madonna and Child with Angels*
F	Lorenzo di Credi (and assistant)	*Madonna and Child*
H	Lombard Painter (probably Borgognone)	*Madonna and Child in a Landscape*
I	Guidoccio Cozzarelli	*Scenes from the Life of the Virgin*
L	Boccaccio Boccaccino	*Madonna Adoring the Child Lying in her Lap*
N	Adriaen Isenbrandt	*Madonna and Child; A Member of the Ehrenberger Family*
O	Jacometto Veneziano	*A Venetian Senator*
P	Unknown Venetian Artist	*The Saviour*
Q	Giovanni Bellini	*Portrait of a Man*
R	Bernardino Fungai	*Madonna and Child with Saints and Angels*
T	Dosso Dossi	*The Flight into Egypt*

*All paintings used in this program are in the Samuel H. Kress Collection of the Joe and Emily Lowe Art Gallery of the University of Miami.

A 19-item pre- and post-test was given. (See Appendix B.) Comparable paintings were used with identical questions. To facilitate testing two slide projectors were used to display paintings simultaneously.

Prior to the post-test, a questionnaire dealing with student attitudes was administered. An additional 222 students who went through the program at later dates also answered the questionnaire.

Results

The results on the pre- and post-test will be found in Table II.

TABLE II

Test Results (19 items)

Test	Mean	SD
Pre-	11.1	2.825
Post-	17.5*	1.478

*A correlated *t* was performed with a resulting *t* of 13.77, significant at the .001 level.

A frequency distribution will be found in Table III.

TABLE III

Test Results, Frequency Distribution

Number correct	Pre-test	Post-test
5	x	
6		
7	xxx	
8	xx	
9	xxxxx	
10	xxx	
11	x	
12	xxx	
13	xxxxx	
14	xxxx	x
15	xxxx	xxx
16		xxxx
17		xxxxx
18		xxxxxxx
19 (100%)		xxxxxxxxxxx

The results of the questionaire were as follows (n=253):

	n	%
1. I found this experience to be		
extremely interesting	177	70
of some interest	73	29
of little interest	2	1
of no interest	1	0
2. For learning about art this technique is		
extremely effective	132	52
effective	111	44
not too effective	7	3
a complete waste of time	0	0
3. I found the material to be		
extremely clear	144	57
clear	105	42
confusing	3	1
extremely confusing	1	0

		n	%
4.	I felt that the booklet was		
	too detailed	6	2
	about right	227	90
	too brief	20	8
5.	I would like to go through this experience for another art lesson	238	94
	I would not like to go through this experience again	15	6
6.	I went only to the pages where I was sent in the program	89	36
	I sometimes went to the other pages in the program	116	46
	I went to all the pages in the program just to see what was there	39	15
	No answer	9	4

7. 125 (49%) stated that they had not been to the gallery previously. Of these 43 (17% of all students) said that as a result of this experience they planned to go on their own at some future date.

Discussion

There can be little doubt that this was a successful technique. The objectives were met and students' attitudes toward the experiment were highly enthusiastic. When given an opportunity to comment, over 175 students did so and with few exceptions (less than 5%) their reactions were extremely positive. For example:

> *I thought it was very interesting. It seemed to lead me to the right answers without my being aware of it. I thoroughly enjoyed it.*
>
> *I liked the way that the paintings were related to each other. It helped to tie them all in, rather than just looking at a bunch of different pictures.*

...it was done beautifully. I found the program to be extremely interesting and effective.

I feel that I have just engaged in an extremely worthwhile art lesson on Renaissance Art. In addition to making my own observations on the paintings the program enabled me to see things that I otherwise would have missed. Without trying to seem overly agreeable, this was without a doubt the most rewarding art lesson of my Humanities experience.

I think this method of studying art was very beneficial for me. It brought out different aspects of art of which I was unaware. By having the pictures right before me, I could better understand the terms which were used.

I found this to be an experience well worthwhile. I was flattered in that I did rather well which will help impress the points made by the booklet more strongly upon my mind. That in itself is rather rewarding.

The term distortion was a bit confusing but that was the only point I feel wasn't brought out properly. I learned much more from this than the art lectures.

This was of tremendous help to me. I say this because art has always been a bit confusing in that I look, but never really understand what I was seeing. With this booklet my understanding of Renaissance art has been greatly enhanced and for this reason I'd like to do this again for a different time period, so I could see the development of another era.

I thought it was an excellent way to conduct an art lesson and would definitely like to do it again! I learned more about art today than I have ever done by just listening to the lectures.

I thought the experience was very rewarding and fun to do--a challenge to the individual--I looked more closely at the paintings, because of this. In a visitation to the gallery on my own, I would have overlooked some paintings because they wouldn't appeal to my aesthetic tastes. I feel I have learned something enjoyable and would venture so again.

I felt that this is a much easier way to learn the characteristics of art. While doing this if you do make a mistake you find out exactly what was incorrect and why you were wrong. I think the experience of seeing things for yourself provides a much better background for learning and understanding.

> *This 'tour' was certainly the most interesting and enlightening I have ever experienced. Learning the subject material came easily, and the development of Renaissance art seemed to appear in one's mind rather than becoming a subject for memorization. I would sincerely like to see more of this type program in the Humanities courses...*
>
> *I felt this technique of presenting the elements of art far more effective than the lecture form. I, personally, gained much knowledge from this experience as well as truly enjoying myself. To me art is a personal matter and a true appreciation of it can only be gained through actual examination.*

Perhaps the greatest indication of the success of the program is the impressive number of students who want more and longer programs. (The average time required for completion was 25 minutes.)

In their comments, however, the students pointed up two weaknesses in the program that will be corrected. First, there is a need to clarify the pronunciation of several of the terms particularly those of foreign origin such as *chiaroscuro* and, second, while not a key part of the program, the discussion of the technique of distortion is too brief.

The success of this programed sequence raises a major area of discussion: What is, from the instructional standpoint, the most effective and efficient combination of television, programed viewing and seminar discussion in the teaching of art history and art appreciation? Experiences at the University of Miami offer some guidelines to a rationale for this decision.

1. Large Group Instruction. Television, or films, is perhaps the only way that art techniques can be demonstrated to a large number of students. Recently the

department presented an extremely effective lecture on the techniques and processes involved in etching. This could have been done in no other way. Through television, otherwise unavailable outstanding lectures and demonstrations become possible; the tape-slide lecture is another approach that should be explored. Presentations of this type, when carefully developed, can be both financially reasonable and instructionally effective.

2. Programed Viewing. When used to compare paintings or to introduce a particular style, this technique is ideal. It not only brings to the student the instruction of experts and the opportunity of seeing actual paintings but accomplishes it without an instructor having to be present. The administrative efficiency of such an approach is obvious.

3. Discussion Seminars. No comprehensive subject can be taught without some interaction between student and teacher and student and student. It is here that points can be clarified and relationships realized. It should not be overlooked that the economic efficiency of large group instruction and programed viewing make possible, without additional staff requirements, an increased use of the relatively expensive, small group discussion seminar.

A final question should be raised. How can programed art instruction be utilized if a museum or art gallery is not available?

Although further investigation is necessary, it can be expected that this same approach, even though lacking the aura associated with real paintings, could prove effective if prints were used. Preferably they would be of actual size and hung on a wall for viewing. If this is not possible, small paper copies of the paintings might suffice.

Conclusions

In all aspects this was a successful use of programed instruction. The following conclusions can be drawn:

1. Students can learn by using a programed sequence in an art gallery.
2. When written in an interesting manner, a program can motivate a student.
3. Most students have a very favorable attitude towards a programed viewing experience in an art gallery and a great number of them request that additional lessons be taught in this manner.
4. This is an effective technique for bringing students to an art gallery for the first time.
5. Specific instructional objectives can be accomplished in this manner without an instructor present.
6. The technique provides an efficient way to utilize an available art resource within an instructional program particularly when large numbers of students are involved.
7. The development of a programed unit of this type requires

both the time and talent of several individuals. (Approximately 80 man hours were spent developing and testing this 25 minute program.)

This study did raise two important questions that should be explored further. When multi-media large group instruction, small group seminars and programed instruction are all available, which objectives of a particular course can be most effectively and efficiently covered in each of the three basic learning situations? Would this technique have proved as effective if actual size copies of the paintings or small study prints were used?

The success of this experiment opens up not only a new application of programed instruction but a new format of instruction within museums, art galleries or any instructional exhibit. It also provides an additional instructional tool for the creative teacher. As the Humanities chairman stated at the conclusion of this experiment,

> *Programed-learning not only forces the inspection of the specific art object, a highly desirable outcome, but seems to offer a solution to the serious administrative problem of how to teach large numbers of students effectively about art with an inadequately trained staff. If this experiment is any indication, programed-learning techniques promise a real and exciting breakthrough in solving many of the problems surrounding the teaching of art.*

Appendix A

Selected pages from

DEVELOPMENTS OF RENAISSANCE ART

by

Evelyn Helmick
Robert M. Diamond
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With content supervision by Peter Haven.

15

Another important development came as the artist began to try to represent something more than flat, two-dimensional shapes. A glance at the cross in B and back to the manger in D will offer another telling comparison illustrating increased concern with the natural world. While the cross is a flat, two-dimensional shape, the manger is a solidly constructed, correctly drawn structure, according to the laws of perspective.

Now compare Painting A and Painting L. Which should be the later picture, if you are judge by the painter's success with suggesting depth?

Painting A. Go to page 16
Painting L. Go to page 17

16

From page 15.

You said Painting A. Remember that perspective means an illusion of depth or height. In this painting everything seems to be on a single plane. Note that the saints, although they are smaller than the Madonna, look as if they are beside her, not behind her. This is distortion to emphasize the more important figures...it is not perspective. This early painting is as flat as a mosaic.

Compare B and D again, and then go back to page 15.

17

From page 15.

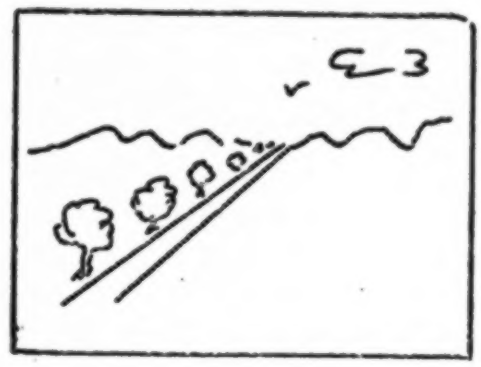
You said Painting L. Good.

In this painting, "Madonna Adoring the Child Lying in Her Lap" by Boccaccio, painted about 1510, we see the beginning of the use of the technique of perspective. There are two distinct areas: the figures of the Madonna and Chils in the foreground, and the landscape behind them. Even the hills to the right seem to lead our eyes to some distant spot, and the building on the left is apparently higher than the trees in front of it. The Madonna's clothing has depth, too. Notice that the cape seems close to us than the dress, her knees closer than the rest of her body.

Go on to the next page.

18

Another technique used by artists to show depth is the use of lines which converge at some vanishing point on the horizon.



Onward to page 19.

19

An additional distinguishing characteristic of developing Renaissance art was the painter's concern with his figures as human beings. Throughout the thirteenth century and into much of the fourteenth, countenances and body gestures remained formalized or stereotyped. Painters depended on traditions passed down for centuries; a repertory of poses was used which represented various emotions and attitudes.

Go on to the next page.

20

For example, in the crucifixion scene (Painting B) the mourner in the lower right corner illustrates the conventions of figure style--the affected pose, the blank expression, the wooden figure. In fact, notice that each person in the painting has the same blank, abstract look.

Now look at the expressions in Painting A. Does this picture show the evolution of more realistic depiction of facial expression and bodily pose?

Yes. Go to page 21.
No. Go to page 22.

21

From page 20

You said Painting A shows more realistic treatment of the human face and figure than Painting B. You're getting careless. You could not have looked very closely. If it were not for hair and clothes they could all be the same person. It would be difficult to decide just what particular emotion their faces are expressing.

Take a good look at this painting, reread page 19 and select the correct answer this time.

22

From page 20.

You said that Painting A shows no development in the individualizing of expressions and poses. How right you are! Each person has large, nutlike eyes with crow's feet at the corners, linear arched brows, furrowed forehead, a double curve in the lips, and a thick, sharp nose. Only the hair, garb, and identifying symbols (a cross for St. John, stigmata for St. Francis, etc.) distinguish one from the other. This certainly is not realism.

Go on to page 23.

APPENDIX B

DEVELOPMENT OF RENAISSANCE ART

Pre-Test and Post-Test

DEVELOPMENT OF RENAISSANCE ART

PRE TEST
POST TEST

ID Number_____

Which of the following paintings, A or B, appears to have been painted later?

1. _____

2. _____

3. _____

4. _____

5. _____

Using only "reality" as your basis for judgment, which painting, A or B, exhibits the characteristics of late Renaissance?

6. _____

Using only "perspective" as your basis for judgment, which painting, A or B, exhibits the characteristics of late Renaissance?

7. _____

Using only the "expression on the faces" as your basis for judgment, which painting, A or B, exhibits the characteristics of late Renaissance?

8. _____

From the following list, describe the form of the paintings:

A. a grisaille
B. a triptych
C. a Gothic arch shape
D. a combination of tondo and rectangular
E. a tondo
F. a diptych

9. _____

10. _____

11. _____

12. _____

13. _____

_____14. A is probably a later painting than B because:

a. there are fewer figures in the painting

b. the colors are brighter

c. the artist has included the natural world in his scene

_____15. The figure in A seems to have more mass than figures in B because the painter:

a. included more background

b. used chiaroscuro

c. used brighter colors

_____16. Which picture, A or B, uses subject matter more typical of the later Renaissance?

_____17. Which picture, A or B, uses chiaroscuro in the way later Renaissance painting used it?

_____18. Which picture, A or B, shows a later development in the use of perspective?

_____19. In the light of all the techniques of Renaissance art you have learned, which painting would you judge to be the latest, A, B, C, or D?

END

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